

Amendments to the claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of claims:

1. (Currently amended) A modified xylanase comprising one or more than one substituted amino acid residue selected from the group consisting of ~~an acidic amino acid~~ at ~~position 11~~, a non-polar amino acid at position 116, a Cys at position 118, a ~~first~~ basic amino acid at position 144, and a ~~second~~ basic amino acid at position 161, said position determined from sequence alignment of said modified xylanase with *Trichoderma reesei* xylanase II amino acid sequence defined in SEQ ID NO:16, wherein the modified xylanase is a Family 11 xylanase and exhibits improved thermophilicity in comparison to a corresponding native xylanase.

2. (Currently amended) The modified xylanase of claim 1, wherein the modified xylanase exhibits improved ~~thermophilicity~~, alkalophilicity, expression efficiency, or a combination thereof, in comparison to a corresponding native xylanase.

3. (Canceled)

4. (Currently amended) The modified xylanase of claim 1, wherein the ~~first~~ basic amino acid at position 144 is selected from a group consisting of Arg and Lys.

5. (Canceled)

6. (Currently amended) The modified xylanase of claim ~~[[5]]~~4, wherein the Family 11 xylanase is a *Trichoderma reesei* xylanase.

7. (Previously presented) The modified xylanase of claim 4, further comprising a His at positions 10 and 105, Met at position 27, Leu at position 29, Ala at positions 75 and 125, and Glu at position 129.

8. (Canceled)

9. (Currently amended) The modified xylanase of claim 1, wherein the ~~second~~ basic amino acid at position 161 is selected from a group consisting of Arg, Lys and His.

10. (Canceled)

11. (Currently amended) The modified xylanase of claim ~~409~~, wherein the Family 11 xylanase is a *Trichoderma reesei* xylanase.

12. (Original) The modified xylanase of claim 9, further comprising a His at positions 10 and 105, Met at position 27, Leu at position 29, Ala at positions 75 and 125, and Glu at position 129.

13. (Currently amended) The modified xylanase of claim 12, ~~further comprising a first~~
the basic amino acid at position 144.

14. (Currently amended) The modified xylanase of claim 13, wherein the ~~first~~ basic
amino acid at position 144 is selected from a group consisting of Arg and Lys.

15. (Canceled)

16. (Currently amended) The modified xylanase of claim ~~15~~14, wherein the Family 11
xylanase is a *Trichoderma reesei* xylanase.

17. (Canceled)

18. (Currently amended) The modified xylanase of claim 1 ~~wherein the~~ further
comprising an acidic amino acid is Asp at position 11.

19. (Canceled)

20. (Currently amended) The modified xylanase of claim ~~19~~18, wherein the Family 11
xylanase is a *Trichoderma reesei* xylanase.

21. (Original) The modified xylanase of claim 18, further comprising a His at positions 10 and 105, Met at position 27, Leu at position 29, Ala at positions 75 and 125, and Glu at position 129.

22. (Currently amended) The modified xylanase of claim 21, ~~further~~ comprising the ~~first~~ basic amino acid at position 144 and the ~~second~~ basic amino acid at position 161.

23. (Currently amended) The modified xylanase of claim 22, wherein the ~~first~~ basic amino acid at position 144 is selected from a group consisting of Arg and Lys, and the ~~second~~ basic amino acid at position 161 is selected from a group consisting of Arg, Lys and His.

24. (Canceled)

25. (Currently amended) The modified xylanase of claim ~~24~~23, wherein the Family 11 xylanase is a *Trichoderma reesei* xylanase.

26. (Canceled)

27. (Previously presented) The modified xylanase of claim 1 wherein the non-polar amino acid is Gly.

28. (Canceled)

29. (Currently amended) The modified xylanase of claim ~~28~~27, wherein the Family 11 xylanase is a *Trichoderma reesei* xylanase.

30. (Original) The modified xylanase of claim 27, further comprising a His at positions 10 and 105, Met at position 27, Leu at position 29, Ala at positions 75 and 125, and Glu at position 129.

31. (Currently amended) The modified xylanase of claim 30, further comprising ~~the~~ an acidic amino acid at position 11, and comprising the ~~first~~ basic amino acid at position 144 and the ~~second~~ basic amino acid at position 161.

32. (Currently amended) The modified xylanase of claim 31, wherein the acidic amino acid at position 11 is Asp, the ~~first~~ basic amino acid at position 144 is selected from a group consisting of Arg and Lys, and the ~~second~~ basic amino acid at position 161 is selected from a group consisting of Arg, Lys and His.

33. (Canceled)

34. (Currently amended) The modified xylanase of claim ~~33~~32, wherein the Family 11 xylanase is a *Trichoderma reesei* xylanase.

35-36. (Canceled)

37. (Currently amended) The modified xylanase of claim 1, wherein the modified xylanase comprises a Cys at position 118 ~~and is derived from a Family 11 xylanase.~~

38. (Previously presented) The modified xylanase of claim 37, wherein the Family 11 xylanase is a *Trichoderma reesei* xylanase.

39. (Previously presented) The modified xylanase of claim 37, further comprising a His at positions 10 and 105, Met at position 27, Leu at position 29, Ala at positions 75 and 125, and Glu at position 129.

40. (Currently amended) The modified xylanase of claim 39, further comprising ~~the~~ an acidic amino acid at position 11, and comprising the ~~first~~ basic amino acid at position 144 and the ~~second~~ basic amino acid at position 161.

41. (Currently amended) The modified xylanase of claim 40, wherein the acidic amino acid at position 11 is Asp, the ~~first~~ basic amino acid at position 144 is selected from a group consisting of Arg and Lys, and the ~~second~~ basic amino acid at position 161 is selected from a group consisting of Arg, Lys and His.

42. (Canceled)

43. (Currently amended) The modified xylanase of claim ~~42~~41, wherein the Family 11 xylanase is a *Trichoderma reesei* xylanase.

44. (Currently amended) The modified xylanase of claim 40, wherein the acidic amino acid at position 11 is Asp, the non-polar amino acid at position 116 is Gly, the ~~first~~ basic amino acid at position 144 is selected from a group consisting of Arg and Lys, and the ~~second~~ basic amino acid at position 161 is selected from a group consisting of Arg, Lys and His.

45. (Canceled)

46. (Currently amended) The modified xylanase of claim ~~45~~44, wherein the Family 11 xylanase is a *Trichoderma reesei* xylanase.

47. (Canceled)

48. (Previously presented) A method of manufacturing pulp, comprising treating the pulp with the modified xylanase of claim 1.

49. (Currently amended) A modified Family 11 xylanase comprising the sequence of TrX-H-11D-ML-75A105H-118C-125A129E-144R161R (SEQ ID NO:55), which modified xylanase exhibits improved thermophilicity in comparison to a corresponding native xylanase.

50-55. (Canceled)

56. (Previously presented) The xylanase of claim 4, wherein the basic amino acid is Arg.

57. (Currently amended) The modified xylanase of claim 1 further comprising ~~the~~ an acidic amino acid at position 11, and comprising the non-polar amino acid at position 116, and the basic amino acid at position 144.

58. (Currently amended) The xylanase of claim 57, wherein the acidic amino acid is Asp, the non-polar amino acid is Gly, and the basic amino acid at position 144 is Arg.

59. (Currently amended) The modified xylanase of claim 1 further comprising ~~the~~ an acidic amino acid at position 11, and comprising a Cys at position 118, and the ~~first~~ basic amino acid at position 144.

60. (Currently amended) The xylanase of claim 59, wherein the acidic amino acid is Asp, ~~the non-aromatic hydrophobic amino acid is Cys,~~ and the basic amino acid at position 144 is Arg.

61. (Currently amended) The modified xylanase of claim 1 having a maximum effective temperature (MET) between about 69°C ~~to~~ and about 84°C, and wherein the modified xylanase is ~~a Family 11 xylanase~~ obtained from a *Trichoderma* sp. [[.]]

62. (Currently amended) The modified xylanase of claim 61, wherein the MET is between about 70° ~~to~~ and about 84°C.

63. (Currently amended) The modified xylanase of claim 1 having a maximum effective pH (MEP) between about pH 5.8 to about pH 8.4, and wherein the modified xylanase is a ~~Family 11 xylanase~~ obtained from a *Trichoderma* sp..

64. (Currently amended) The modified xylanase of claim 63, wherein the MEP is between about pH 6.0 ~~to~~ and about pH 8.0.

65. (Currently amended) The modified xylanase of claim 61, wherein the modified xylanase is further characterized as having a maximum effective pH (MEP) is between about pH 5.8 ~~to~~ and about pH 7.6.

66. (Currently amended) The modified xylanase of claim 62, wherein the modified xylanase is further characterized as having a maximum effective pH (MEP) is between about pH 6.5 ~~to~~ and about pH 7.4.

67. (Currently amended) The modified xylanase of claim 1, wherein the ~~first~~ basic amino acid at position 144 is Arg, the ~~second~~ basic amino acid at position 161 is Arg, or both the ~~first~~ basic amino acid at position 144 and the ~~second~~ basic amino acid at position 161 are Arg.

68. (Currently amended) The modified xylanase of claim 1, further comprising ~~the~~ an acidic amino acid at position 11, and comprising the ~~first~~ basic amino acid at position 144, and the ~~second~~ basic amino acid at position 161.

69. (Currently amended) The modified xylanase of claim 68, wherein the acidic amino acid is Asp, the ~~first~~ basic amino acid at position 144 is Arg and the ~~second~~ basic amino acid at position 161 is Arg.

70. (Currently amended) The modified xylanase of claim 1 further comprising ~~the~~ an acidic amino acid at position 11, and comprising the non-polar amino acid at position 116, the ~~first~~ basic amino acid at position 144, and the ~~second~~ basic amino acid at position 161.

71. (Currently amended) The modified xylanase of claim 1, ~~wherein the~~ further comprising an acidic amino acid ~~is Asp at position 11~~, and wherein the non-polar amino acid is Gly, the ~~first~~ basic amino acid at position 144 is Arg and the ~~second~~ basic amino acid at position 161 is Arg.